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<120> Method for producing glucoamylases and their use in
       saccharification

<130> 10362.000

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<170> PatentIn version 3.2

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tct	gca	cag	tct	gcg	tct	gcg	aca	gca	tat	ctt	acc	aag	gaa	tct	gca	96
Ser	Ala	Gln	Ser	Ala	Ser	Ala	Thr	Ala	Tyr	Leu	Thr	Lys	Glu	Ser	Ala	
		20					25					30				

gtt	gcc	aag	aat	ggc	gta	ctt	tgc	aac	att	ggt	agc	cag	gga	tgc	atg	144
Val	Ala	Lys	Asn	Gly	Val	Leu	Cys	Asn	Ile	Gly	Ser	Gln	Gly	Cys	Met	
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Ser Pro Asp Tyr Leu
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tcg tcg ctc gtc ttc aag atg tta att gac caa tac aca aat ggc ctg         348
Ser Ser Leu Val Phe Lys Met Leu Ile Asp Gln Tyr Thr Asn Gly Leu
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gat acg gtatgtggca tcngcgttcc ggctcgcctc aaagatgnaa aattgatgtt          404
Asp Thr

tcttag aca ctg cgc act ctc att gac gag ttt gtc tct gcg gaa gcc         452
       Thr Leu Arg Thr Leu Ile Asp Glu Phe Val Ser Ala Glu Ala
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acc att caa caa acc agt aac cca tct ggt acc gtc tct acc ggt ggt         500
Thr Ile Gln Gln Thr Ser Asn Pro Ser Gly Thr Val Ser Thr Gly Gly
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Leu Gly Glu Pro Lys Phe Asn Ile Asp Glu Thr Ala Phe Thr Gly Ala
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tgg ggt cgt gtaagctacc aatacacaat caaaatcgac catctgtatt               597
Trp Gly Arg
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                      Pro Gln Arg Asp Gly Pro Ala Leu Arg Ala Thr
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Ala Ile Met Thr Tyr Ala Thr Tyr Leu Tyr Asn Asn Gly Asn Thr Ser
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Tyr Val Thr Asn Thr Leu Trp Pro Ile Ile Lys Leu Asp Leu Asp Tyr
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Val Asn Ser Asp Trp Asn Gln Thr
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acttatctaa aacagcatat tcaaccagta aatag cg  ttt gac ctc tgg gaa        842
                                          Thr Phe Asp Leu Trp Glu
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gaa gtt gac tcg tct tct ttc ttt acg act gcc gtt cag cac cgt gct        890
Glu Val Asp Ser Ser Ser Phe Phe Thr Thr Ala Val Gln His Arg Ala
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ctt gtt cag ggc gca gcc ttt gct acc ctc atc ggc caa act tcg tct        938
Leu Val Gln Gly Ala Ala Phe Ala Thr Leu Ile Gly Gln Thr Ser Ser
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                      250             255                 260


ggt ggc gga cgt tcc ggc aag gac gcc aac acc ata ctc gct tct atc    1145
Gly Gly Gly Arg Ser Gly Lys Asp Ala Asn Thr Ile Leu Ala Ser Ile
                265             270                 275


cac aca ttt gac gcc agc gcc ggc tgc tct gct gcc acg tct caa cca    1193
His Thr Phe Asp Ala Ser Ala Gly Cys Ser Ala Ala Thr Ser Gln Pro
            280             285                 290


tgc tct gac gta gca ttg gcc aac ctg aag gta tac gtt gac tct ttc    1241
Cys Ser Asp Val Ala Leu Ala Asn Leu Lys Val Tyr Val Asp Ser Phe
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cgt agt att tat acg atc aac agc ggt att tcc tct acc tcg ggt gtt    1289
Arg Ser Ile Tyr Thr Ile Asn Ser Gly Ile Ser Ser Thr Ser Gly Val
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Ala Thr Gly Arg Tyr Pro Glu Asp Ser Tyr Tyr Asn Gly Asn
325             330             335


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cctgtacatt caaaatag ccc tgg tac ctc tgc aca ctc gcc gtc gcc gag    1442
                    Pro Trp Tyr Leu Cys Thr Leu Ala Val Ala Glu
                        340             345


cag ctc tat gat gct ctc atc gta tgg aag gct gcc ggg gag ctc aac    1490
Gln Leu Tyr Asp Ala Leu Ile Val Trp Lys Ala Ala Gly Glu Leu Asn
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Val Thr Ser Val Ser Leu Ala Phe Phe Gln Gln Phe Asp Ser Ser Ile
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Thr Ala Gly Thr Tyr Ala Ser Ser Ser Ser Val Tyr Thr Ser Leu Ile
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Ser Asp Ile Gln Ala Phe Ala Asp Glu Phe Val Asp Ile Val Ala Lys
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Tyr Thr Pro Ser Ser Gly Phe Leu Ser Glu Gln Tyr Asp Lys Ser Thr
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Gly Ala Gln Asp Ser Ala Ala Asn Leu Thr
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Gly Ala Ser Trp Gly Ala Lys Gly Val Ser Thr Ser Cys Ser Thr Gly
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gct aca agc ccg ggt ggc tcc tcg ggt agt gtc gag gtc act ttc gac       1933
Ala Thr Ser Pro Gly Gly Ser Ser Gly Ser Val Glu Val Thr Phe Asp
            475             480             485

gtt tac gct acc aca gta tat ggc c gtaagcactt gactagcttc              1978
Val Tyr Ala Thr Thr Val Tyr Gly
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aaaccatact tcatcatgct gataaacaaa aaaatgaaac ag ag  aac atc tat        2031
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Ile Thr Gly Asp Val Ser Glu Leu Gly Asn Trp Thr Pro Ala Asn Gly
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gtt gca ctc tct tct gct aac tac ccc acc tgg agt g gtaagttgac         2126
Val Ala Leu Ser Ser Ala Asn Tyr Pro Thr Trp Ser
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Ala Leu Pro Ala Asp Thr Thr Ile Gln Tyr Lys Tyr Val Asn Ile Asp
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ggc agc acc gtc atc tgg gag gat gct atc agc aat cgc gag atc acg       2277
Gly Ser Thr Val Ile Trp Glu Asp Ala Ile Ser Asn Arg Glu Ile Thr
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acg ccc gcc agc ggc aca tac acc gaa aaa gac act tgg gat gaa tct       2325
Thr Pro Ala Ser Gly Thr Tyr Thr Glu Lys Asp Thr Trp Asp Glu Ser
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Ser Pro Asp Tyr Leu Tyr Thr Trp Thr Arg Asp Ser Ser Leu Val Phe
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Lys Met Leu Ile Asp Gln Tyr Thr Asn Gly Leu Asp Thr Thr Leu Arg
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Thr Leu Ile Asp Glu Phe Val Ser Ala Glu Ala Thr Ile Gln Gln Thr
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Ser Asn Pro Ser Gly Thr Val Ser Thr Gly Gly Leu Gly Glu Pro Lys
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Phe Asn Ile Asp Glu Thr Ala Phe Thr Gly Ala Trp Gly Arg Pro Gln
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Arg Asp Gly Pro Ala Leu Arg Ala Thr Ala Ile Met Thr Tyr Ala Thr
145   150   155   160

Tyr Leu Tyr Asn Asn Gly Asn Thr Ser Tyr Val Thr Asn Thr Leu Trp
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Pro Ile Ile Lys Leu Asp Leu Asp Tyr Val Asn Ser Asp Trp Asn Gln
            180   185   190

Thr Thr Phe Asp Leu Trp Glu Glu Val Asp Ser Ser Ser Phe Phe Thr
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Thr Ala Val Gln His Arg Ala Leu Val Gln Gly Ala Ala Phe Ala Thr
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Leu Ile Gly Gln Thr Ser Ser Ala Ser Thr Tyr Ser Ala Thr Ala Pro
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Ser Ile Leu Cys Phe Leu Gln Ser Tyr Trp Asn Thr Asn Gly Tyr Trp
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Gly Asn Pro Trp Tyr Leu Cys Thr Leu Ala Val Ala Glu Gln Leu Tyr
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Asp Ala Leu Ile Val Trp Lys Ala Ala Gly Glu Leu Asn Val Thr Ser
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Val Ser Leu Ala Phe Phe Gln Gln Phe Asp Ser Ser Ile Thr Ala Gly
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Gln Ala Phe Ala Asp Glu Phe Val Asp Ile Val Ala Lys Tyr Thr Pro
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Tyr Gln Ala Arg Asn Gly Phe Thr Gly Ala Ser Trp Gly Ala Lys Gly
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Pro Ala Asn Gly Val Ala Leu Ser Ser Ala Asn Tyr Pro Thr Trp Ser
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Ala Thr Ile Ala Leu Pro Ala Asp Thr Thr Ile Gln Tyr Lys Tyr Val
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Asn Ile Asp Gly Ser Thr Val Ile Trp Glu Asp Ala Ile Ser Asn Arg
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